



Web Based Application For Secure Online Voting System

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Abstract: Data Mining is an analysis tool used to extract knowledge from vast amount of data with security for effective decision making. Online voting system uses this technique, to increase transparency at highest level and to increase operational effectiveness to minimize piracy of data and also to have faster access of secure data for effective decision making. Since some years ago, different methods, such as the secret ballot method or the punch card systems have been held to carry on electoral processes, where people have to visit the booth to cast their votes in the existing system. Since then Android app fast evolution of Information Technology, voting systems have emerged, which allow a voter to be part of an automated process, that can only be possible through Voting Systems. The proposed system is online and hence even people who live out of their home town can also vote. Increasing the voting percentage is the major goal. The main objective of proposed system is to provide, a quick and efficient retrieval of information.

Keywords: Data Mining, Voting System, Electoral Process, Encryption and Decryption.

INTRODUCTION:

Online voting system is an online voting technique, where a voter can use his\her voting right online in "online voting system" without any difficulty. He\She has to fill a registration form to register himself\herself. All the names of voter with complete information is stored in the database which is maintained by the election commission. All the entries about the information of the voter are checked by the database which is already stored. The user id and password is given to the voter, if all the entries are correct and then by using that id and password he\she can use his\her vote. Then that entry will be discarded, if conditions are wrong.

OBJECTIVE:

To create and manage the polling and election details is the aim of the project. All the citizens can cast their vote online in the proposed system. The major goal of this project is to increase the voting percentage across the country. In the present system across the country, people have to visit the booth to cast their vote, but the proposed system is online and hence even people who live out of their home town can also vote. All the eligible citizens and candidate details are maintained in the database.

1. **Planned approach towards working:** - The working in the organization will be well planned and organized. The data will be stored properly in data base, which will helps storage and in the retrieval of information.

2. **Accuracy:** - In the proposed system, the level of accuracy will be higher. The system ensures that all the operation would be done correctly or not.

3. **Reliability:** - The proper storage of information in the

proposed system is the reason for the increased reliability of the system.

4. **No Redundancy:** - It cares about that no information is repeated anywhere, in the data storage, in the proposed system. It would assure about the economic use of storage space and consistency in the data storage.

5. **Immediate retrieval of information:** - To provide a quick and efficient retrieval of information, is the main objective of proposed system.

6. **Immediate storage of information:** - There are many problems to store the largest amount of information, in the manual system, but the information storage is immediate in the proposed system.

7. **Easy to Operate:** - The system should be easy to operate and such that it can be developed within a short period of time and fit in the limited budget for the user, which is done in the proposed system.

EXISTING SYSTEM:

To carry out the voting and procedure as a whole, there are no such application level system provisions. There is no such application in use of automated system for voting in the present status, according to the voting structure. According to the jobs assigned by the election commission, all the step by step procedures are carried out by the authorized authorities. All the procedures are carried out manually, is the real fact which is starting from the registration process to result publishing.

The current system is manual where lot of time and money is wasted. Thus the present system proves that itself is an inefficient one. Since, the existing system is not web based, and hence the user or person must need to go to the polling station for casting their votes.

Disadvantages:

The disadvantages of the existing system are the following. They are,

- 1) There is no unique identification of voter.
- 2) There is no accurate vote counting: There may be duplication of the voters.
- 3) The existing system which is not a portable system.
- 4) The participation of voters may be less.
- 5) A fraud vote can be submitted.

PROPOSED SYSTEM:

The new implemented proposed voting system has the voter and administrator sections and the voter(which can be found at home, in the working station, a special polling

station or any other device have the function of performing the Authentication and voting). The function of voter and candidate registration, authorization and validation of voter, database and counting and the result, were all these process are performed by the administrator system.

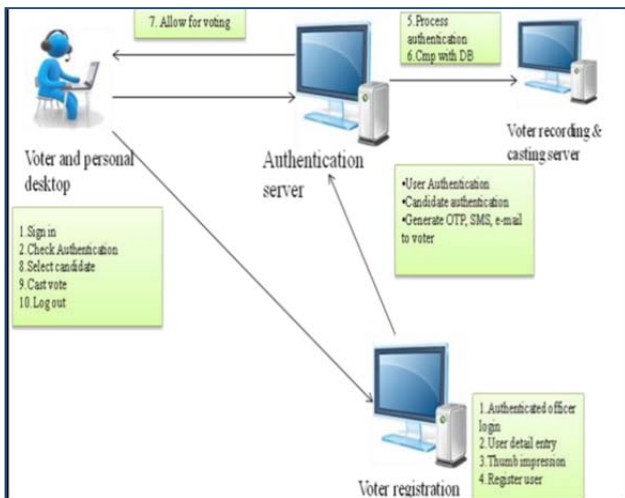


Fig 1. Architecture Diagram

Figure 1 shows the Architecture diagram of online voting system.

ALGORITHM USED:

The algorithms used in the secure online voting systems are AES and DES algorithms.

DESCRIPTION:

In the voting system, during registration a pair of asymmetric keys generated by the voter, in which one is private and other is public. The voter keep his private key secret and other public key goes to server along with other registration details of voter.

By login on the website as represented by the architecture diagram[fig 1], voter can change his/her password, for the security purpose. On the day of election voter logs in using his/her own username and password. The server sends the ballot along with public encryption key, when a voter request for the ballot. Using public encryption key, the voter cast his/her vote and encrypts it. When voter cast his/her vote the internally assigned Id for each candidate, is encrypted by public encryption key provided with ballot.

Voter signs digitally on that vote using his/her own private digital signature and send both these to server. If the casted vote is accessed by the passive intruder, he/she cannot know to whom the voter has voted because the vote is in encrypted form. If the active intruder altered the vote and send it to the voting server, server easily knows about the alteration of the vote because the vote is digitally signed, the active intruder's vote signature also altered, and the server came to know that the vote is altered by verifying the signature and the server inform the voter about it.

On the day of counting, the authorized voting officer, decrypt the encrypted vote to normal vote by using private decryption of voting system and the counting is done and the result is declared.

ADVANTAGES:

The main advantages of the new proposal are the following. They are,

- 1) Public transparency by the administrator (publication of Voter's unique ID, etc.).
- 2) The proposed system inured to technical troubles like interruption of access, uncomplicated recovery.
- 3) Possibility of configuration for different voting models is done by the policies and greater performance.

Furthermore a trustworthy Administrator is available is assumed. Apart from that, in the voting procedure, the accessibility to the public plays a special role, that means that the voting result can be monitored. Accessibility to the public for all voting stages is necessary and it is performed by the electoral committee, and also by any member of the public.

The analysis of the focused part is that the development of voting application on an android platform. When it is used in real life election process, the usability of this system as represented by the flow diagram[fig 2] is very high. For the users who wish to vote, it will definitely helpful and the voting process will be made very easy by using the proposed application. After having tested the system, in future we tend to add additional functionality of image validation further for the security constraint and uniqueness which will provide very strong security about the vote for confidential information.

PROBLEM DEFINITION:

Not User Friendly: The retrieval of data is very slow and the data is not maintained efficiently and thus existing system is not user friendly.

Difficulty in report generating: To generate the final result, we require more calculations and it is generated at the end of the session and because of this the voter not get a single chance to change his/her vote.

Time consuming: We cannot generate report in the middle of the session or as per the requirement because it is very time consuming since every work is done manually.

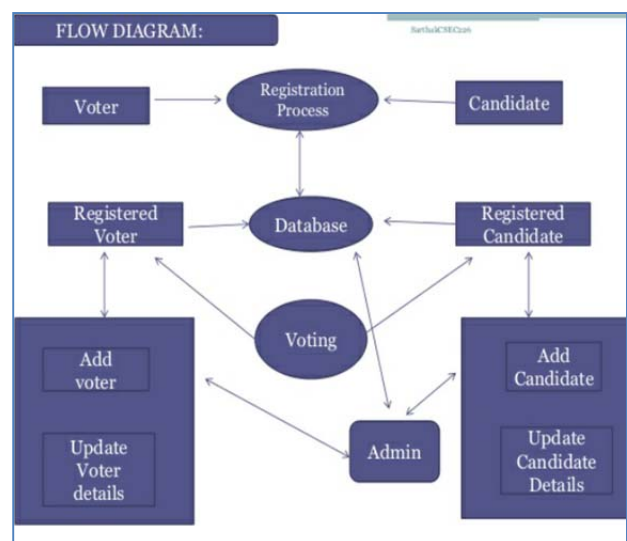


Fig 2. Flow Diagram

Figure 2 shows the flow diagram of online voting system.

MODULE DESCRIPTION :

- 1) Authentication module
- 2) Administrator module
- 3) Election Commission

1.Authentication module:

User interface consists of a login name and unique password, by using that he/she can login[fig 6] into the Online Voting System. And then login page creates an OTP code. The User will be verified with an OTP code and after that the user can put the vote and log out the system.

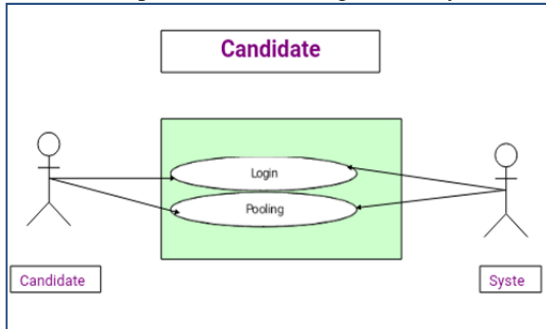


Fig 3. Authentication Module

Figure 3 shows the authentication module of the online voting system.

Vote:

Vote method provides the voter with a list of candidate with his/her constituency along with selection option to select the preferred candidate from the list[fig 10]. The vote goes valid or else goes invalid if the voting date is before termination date.

View Results:

View Results provides user friendly and graphical representation of the votes which is obtained by each candidate. Only after the termination date of the election, the result can be viewed.

Logout

Logout method provides an option for the voter to quit the session ,while in the voter home page.

2. Administrator module:

Admin can login into the Online Voting System by using login name and unique password. Administrator has the main control of the system. They can perform the following tasks[fig 4], by logging into the page.

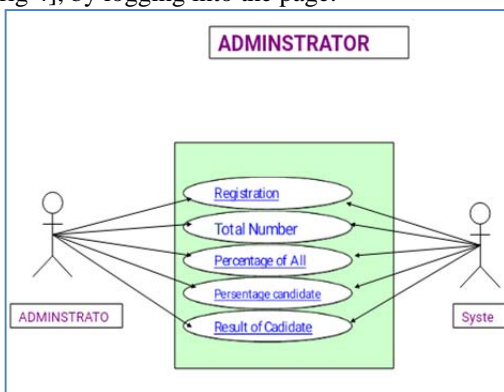


Fig 4. Administrator Module

Figure 4 shows the administrator module of the voting system.

Add Candidate:

The list of candidates are added by the admin[fig 8] in the election, which includes candidates name, address, gender, party, party symbol etc. Only after completing the procedures, the candidates will be added to the list.

3. Election Commission:

Voting Structure:

Here, the eligible voters are permitted to login to the system can utilize the right to vote[fig 7]. Each voter can register a single vote to a candidate's favour in his/her constituency. The security measures taken within the system prevents from exercising their votes again i.e. the second vote by the same user goes invalid. By the administrator, the starting and ending dates of the election are specified. The user must have an identity card and the user must be in voters list.

Voters Registration:

The registration procedure includes all the eligible voters .The registration process of voting system[fig 6] is done by the administrator. According to voters database, each voter is given with a unique identification codes that includes username and password. The voter list can be viewed by anyone through accessing the webpage. In his homepage, the admin can view the voter list.

Counting and Categorization of Results:

When the voter votes, the number of votes obtained by the selected candidate is hike by,

- 1.The result is published only after the voting process is over. After the termination date, it is accessible from the next day. Without any authentication problem, result can be viewed by everyone who visits into the site. When the user clicks the "RESULT" link, before the termination date of the election, "Result not Published yet" like that the message will be displayed.

SYSTEM DESIGN

The main aim of the system design is to identify the modules that should be present in the system, and the specifications of the modules and how they interact with each other to produce the desired results. File formats and the major modules in the system and their specifications are decided, at the end of system design. Normally this design proceeds in two stages: preliminary or general design, structure or detailed design.

Preliminary or general design:

In the preliminary or general design, the features of the new system are specified. The costs of implementing the features and the benefits to be derived are estimated in the design. We move to detailed design stage, if the design is still considered to be feasible.

Structure or detailed design:

In the detailed design stage, computer oriented work begins is the earnest. At this stage, the design of the system becomes more structured and the structured design is a blue print of a computer system solution for a given problem that having the same components and inter-relationship as type of the original problem. Input, output and processing specifications are drawn in detail. There are several tools and techniques used for designing.

Other design criteria include the following:

Documentation: A good design always comes with the set of well-written documents.

Testability: Every requirement is testable, in a good design. A design that cannot be easily tested against its requirements is not acceptable design.

Structure: A good design presents hierarchical structure among the components, that makes logical use of control policies.

Modularity: A good design is modular and exhibits the properties of high cohesiveness and low coupling.

Representation: A good design should be easily communicated to all interested parties through appropriate abstraction and representation.

Reusability: A good design should be repeatable and reusable.

CONCLUSION:

The system includes authentication, administrator and election commission methodologies. Here, the user can login and vote the nominee with secure data. Administrator will add the nominees list for the voter’s verification to caste their votes.

Then election commission process includes the validation of secure voting structure of user’s registration and after the approval given by election commission, user can caste their valuable votes. And also describes about the counting and categorization of results in voting system. Hence data mining helps in the online voting system for the effective decision making with security.

EXPERIMENTAL RESULTS:

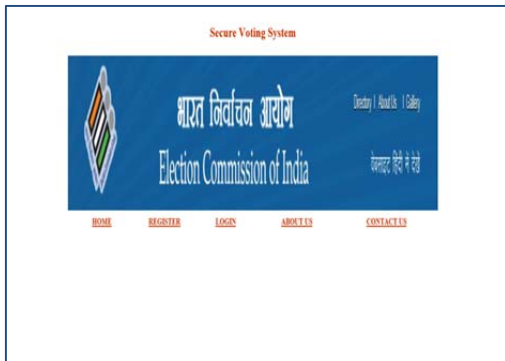


Fig 5. Home Screen

Figure 5 shows the home screen of the online voting system.



Fig 6. User Registration

Figure 6 shows the registration for the users.



Fig 7. Candidate Details

Figure 7 shows the details of candidate.



Fig 8. Add Candidate

Figure 8 shows the adding of candidate.

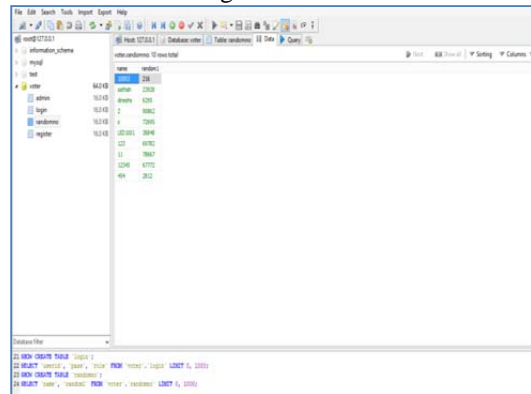


Fig 9. DataBase - Random No

Figure 9 shows the Database of random number.

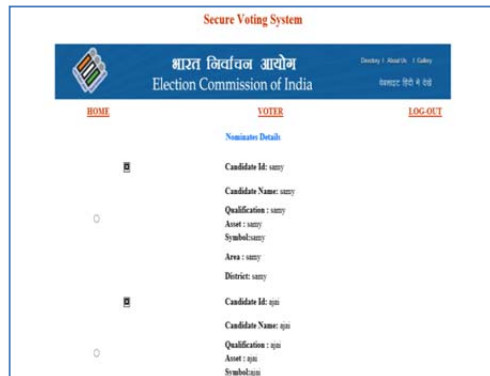


Fig 10. Nominee Details

Figure 10 shows the details of the nominee.

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